

Chairwoman Mace, Ranking Member Connolly, and Members of the Subcommittee:

Thank you for the invitation and the opportunity to testify before the Cybersecurity, Information Technology, and Government Innovation Subcommittee. My name is Gavin Kenneally and I am the CEO of Ghost Robotics, which I co-founded with CTO Avik De in 2015. Avik and I met while completing our PhDs at the University of Pennsylvania, and started the company based on our shared commitment of creating highly responsive and agile legged robots for real-world applications.

Through our research, we discovered that we could design a legged robot with less complex hardware and more sophisticated software using motors to directly feel the ground through the legs. Working closely with our early customers, we developed a scalable robot that could meet government as well as commercial needs, and have created this machine--the Vision 60.

\*Vision 60 to enter or stand up\*

Our robot is able to overcome more challenging terrain than similarly-sized wheeled or tracked machines. It can move over sand, rocks, hills, ice, and snow and can climb up and down stairs. If our robot falls or gets knocked over, it can even operate upside-down, or it can right itself to complete the mission. The Vision 60 can operate in austere environments, since it is fully dust and waterproof and can tolerate extreme temperatures from -40 to 130 degrees Fahrenheit. The robot leads its class in endurance and can complete missions up to 6 miles in distance. When the battery runs low, the robot automatically recharges itself using its wireless docking station.

The Vision 60 is currently in use by many branches of the Department of Defense. It performs perimeter security at eight United States Air Force bases throughout the country. The robot's ability to traverse diverse and difficult terrain, in all weather and at extreme temperature, makes it ideal for environments found along the U.S Southern and Northern borders. In addition, we have done field testing with the Science and Technology Office of the Department of Homeland Security.

The Vision 60 is a platform that has many features that are crucial for national security and protection purposes. It has onboard surround color cameras and microphones and 22 pounds of capacity for additional payloads as necessary. The robot can interface with standard off-the-shelf sensors such as pan-tilt-zoom, thermal or infrared cameras, and can then either analyze or do anomaly detection itself, or stream the video feed back to the controller or base station. The robot can also interface with many chemical, biological, radiation, and nuclear sensors, to identify all kinds of dangerous or toxic substances from afar.

When used to traverse the difficult terrain found along the US borders, our Vision 60 robot, equipped with appropriate sensors, can save lives. For example, patrolling robots with a Raman Spectroscopy sensor could be used to improve drug trafficking detection. This is an invaluable asset, given that, according to the US Drug Enforcement Administration, Fentanyl is the leading cause of death for Americans under the age of 50, and the majority of it flows across the Southern Border. In addition, given that several hundred migrants die near the Southern border every year from drowning or heat stroke, a thermal camera could be used to identify them before it is too late.

There are many other such beneficial applications from using these robots for data collection and as communication nodes, which will emerge with the continued collaboration between Ghost Robotics and the Department of Defense and other government agencies.

Thank you and I look forward to your questions.